"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Sprague's Stump
Sale 341-11-26

District: Astoria **Date:** May 28, 2010

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$2,573,605.11	$119,224.56	$2,692,829.67
		Project Work:	$(220,677.00)
		Advertised Value:	$2,472,152.67

"STEWARDSHIP IN FORESTRY"

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Sprague's Stump
Sale 341-11-26

District: **Astoria** **Date:** **May 28, 2010**

timber description

Location: Portions of Sections 4, 9, and 16, T6N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	20	0	97
Western Hemlock / Fir	14	0	97
Red Cedar	21	0	97
Alder (Red)	13	0	96

Volume by Grade	2S	3S	4S	Camprur	Total
Douglas - Fir	6,689	1,705	203	0	8,597
Western Hemlock / Fir	69	38	21	0	128
Red Cedar	1	0	0	0	1
Alder (Red)	0	0	0	364	364
Total	6,759	1,743	224	364	9,090

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District: Astoria **Date: May 28, 2010**

comments: Pond Values Used: 1st Quarter Calendar Year 2010.

Expected Log Markets: Mist, OR; Clatskanie, OR; Tillamook, OR; Forest Grove, OR.

SCALING COST ALLOWANCE = $5.00/MBF

FUEL COST ALLOWANCE = $3.00/Gallon

HAULING COST ALLOWANCE
Hauling costs equivalent to $700 daily truck cost.

Other Costs (with Profit & Risk to be added):
100% Branding and Painting: $1MBF x 9,090 MBF = $9,090
Log Loader Slash & Landing Piling (includes Move-In and Pile Materials): = $22,273 (see attached appraisal)
Machine washing for noxious weed compliance = $1,000
TOTAL Other Costs (with Profit & Risk to be added) = $32,363

Other Costs (No Profit & Risk added):
Waterbar and block dirt road segments after harvest:
$13.85/station x 76.7 stations = $1,062
Snag Creation:
Create 115 snags x $40.00/snag = $4,600
TOTAL Other Costs (No Profit & Risk added) = $5,662

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Sprague's Stump
Sale 341-11-26

District: Astoria **Date: May 28, 2010**

logging conditions

combination#: 1

Douglas - Fir	8.45%
Western Hemlock / Fir	19.82%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Cable: Medium Tower >40 - <70 **Process:** Manual Delimbing
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 6.0 **bd. ft / load:** 4,000
cost / mbf: $144.17

machines: Log Loader (A)
Tower Yarder (Medium)

combination#: 2

Douglas - Fir	11.20%
Western Hemlock / Fir	26.27%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Track Skidder **Process:** Manual Falling/Delimbing
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 7.0 **bd. ft / load:** 4,500
cost / mbf: $109.22

machines: Log Loader (B)
Track Skidder

combination#: 3

Douglas - Fir	13.66%
Western Hemlock / Fir	9.16%
Red Cedar	17.00%
Alder (Red)	17.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Cable: Medium Tower >40 - <70 **Process:** Manual Falling/Delimbing
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 10.0 **bd. ft / load:** 4,500
cost / mbf: $76.89

machines: Log Loader (A)
Tower Yarder (Medium)

combination#: 4

Douglas - Fir	66.69%
Western Hemlock / Fir	44.74%
Red Cedar	83.00%
Alder (Red)	83.00%

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Sprague's Stump
Sale 341-11-26

District: Astoria **Date: May 28, 2010**

yarding distance:	Medium (800 ft)	**downhill yarding:**	No
logging system:	Track Skidder	**Process:**	Manual Falling/Delimbing
tree size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF		
loads / day:	12.0	**bd. ft / load:**	4,500
cost / mbf:	$63.71		

machines: Log Loader (B)
Track Skidder

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Sprague's Stump
Sale 341-11-26

District: Astoria

Date: May 28, 2010

logging costs

Operating Seasons:	3.00	**Profit Risk:**	12.00%
Project Costs:	$220,677.00	**Other Costs (P/R):**	$32,363.00
Slash Disposal:	$0.00	**Other Costs:**	$5,662.00

Miles of Road

Road Maintenance: $2.88

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	$0.00	3.0	4.5
Western Hemlock / Fir	$0.00	2.0	4.0
Red Cedar	$0.00	2.0	4.0
Alder (Red)	$0.00	2.0	3.5

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Sprague's Stump
Sale 341-11-26

District: Astoria **Date: May 28, 2010**

logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
$77.40	$2.97	$1.45	$47.69	$3.56	$15.97	$0.00	$5.00	$0.62	$154.66
Western Hemlock / Fir									
$92.82	$2.97	$1.45	$80.46	$3.56	$21.75	$0.00	$5.00	$0.62	$208.63
Red Cedar									
$65.95	$2.97	$1.45	$80.46	$3.56	$18.53	$0.00	$5.00	$0.62	$178.54
Alder (Red)									
$65.95	$3.00	$1.45	$92.86	$3.56	$20.02	$0.00	$5.00	$0.62	$192.46

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$451.55	$296.89	$0.00
Western Hemlock / Fir	$0.00	$369.57	$160.94	$0.00
Red Cedar	$0.00	$820.00	$641.46	$0.00
Alder (Red)	$0.00	$520.00	$327.54	$0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Sprague's Stump
Sale 341-11-26

District: **Astoria** **Date:** **May 28, 2010**

summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	$0.00	$0.00
Western Hemlock / Fir	0	$0.00	$0.00
Red Cedar	0	$0.00	$0.00
Alder (Red)	0	$0.00	$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	8,597	$296.89	$2,552,363.33
Western Hemlock / Fir	128	$160.94	$20,600.32
Red Cedar	1	$641.46	$641.46
Alder (Red)	364	$327.54	$119,224.56

Gross Timber Sale Value

Recovery: $2,692,829.67

Prepared by: Ty Williams **Phone:** 503-325-5451

Site Prep Appraisal

Sale Number: 341-11-26
Sale Name: Sprague's Stump
Date: 04/19/2010

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	4.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
2	MC	A	80	80	$110.00	$8,800.00
3	MC	A	32	32	$110.00	$3,520.00
4	MC	A	46	46	$110.00	$5,060.00

Sub Total = *$17,380.00*

Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
2	2	$263.00	$526.00	240	$5.00	$1,200.00
3	3	$263.00	$789.00	96	$5.00	$480.00
4	1	$263.00	$263.00	138	$5.00	$690.00

*Cost includes separating firewood

Sub Total = *$3,948.00*

Move-In Allowance	Number of Move-In's	Total Move-In Allowance
$945.00	1	$945.00

Sub Total = *$945.00*

Grand Total = **$22,273.00**

Road Maintenance Cost Summary

Sale: Sprague's Stump
Date: 29-Apr-09
By: J.McCoy

MBF: 9,090
$$/MBF: $2.88

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	$675	1	12	$93	$1,791
	Dump Truck 12CY x 2	$141	2	16	$73	$1,450
	FE Loader C966	$675	1	8	$77	$1,291
Progressive Operations 2nd Entry	Grader 14G	$675	1	12	$93	$1,791
	Dump Truck 12CY x 2	$141	2	16	$73	$2,336
	FE Loader C966	$675	1	8	$77	$1,291
Final Road Maintenance	Grader 14G	$675	1	43	$93	$4,705
	Dump Truck 12CY x 4	$141	4	40	$73	$3,484
	FE Loader C966	$675	1	10	$77	$1,445
	Vibratory Roller*	$675	1	40	$72	$3,555
	Water Truck 2,500 gallon	$165	1	30	$83	$2,655
	Labor			10	$37	$370
Total						$26,164

Production Rates

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	3.0	1.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	3.0	1.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	6.5	4.3
Vibratory Roller*	1.5	6.5	4.3

*Final Road Maintenance Only

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Sprague's Stump

NEW CONSTRUCTION:

Project No. 1

	Road segment		Length/Sta	Cost	
Rocked Roads	1A-1B, 1C-1D, 2A-2B,		101.85	$138,820	
	4A-4B, 4C-4D, 4E-4F.				
Dirt Roads	2C-2D, 2E-2F, 3A-3B,		40.90	$12,276	
	3C-3D.				
	TOTALS	2.70 miles	142.75		$151,096

ROAD IMPROVEMENT:

Project No. 1

	Road segment		Length/Sta	Cost	
Rocked Roads	I1-I2, and I3-I4		16.60	$9,019	
Dirt Road	I5-I6.		34.50	$210	
	TOTALS	0.97 miles	51.10		$9,229

SPECIAL PROJECTS:

Project No. 2

Road Vacating		$20,000

Project No. 3

Gate Construction		$7,440

Project No. 4

Stream Enhancement		$11,672
Project Work Road Maintenance		$14,530

MOVE IN:

Equipment	Cost	
Dozer (D8)	$1,220	
Dump Trucks (12 cy x 6)	$846	
Dump Trucks (20 cy x 2)	$332	
F E Loader (C966)	$675	
Grader (14G)	$675	
Rubber Tire Skidder (C518)	$622	
Vibratory Roller	$675	
Water Truck (2,500 gallon)	$165	
Backhoe (C 312)	$279	
Excavator (C330)	$1,220	
TOTAL		$6,709

GRAND TOTAL **$220,677**

Compiled By: J. Long FL Date: 04/20/2010

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SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Sprague Stump (Surfaced Roads)
ROADS: 1A-1B (13+45), 1C-1D (3+00), 2A-2B (46+70), 4A-4B (22+90), 4C-4D (13+80), & 4E-4F (2+00).

NEW CONSTRUCTION: 101.85 **STATIONS** 1.93 **MILES**
IMPROVEMENT: **STATIONS** 0.00 **MILES**

CLEARING & GRUBBING

Method	Acres/amount		Rate	=	Cost
Scatter Outside of R/W					
1A-1B, 1C-1D, 2A-2B, 4A-4B, & 4C-4D.	10.0	x	$1,161.00	=	$11,610.00

SUB TOTAL FOR CLEARING & GRUBBING $11,610

EXCAVATION

Material	Cy/amount/station		Rate	=	Cost
Balanced Construction 1C-1D, 4E-4F $$/station	5	x	$106.00	=	$530.00
Common drift excavation 1A-1B, 2A-2B, 4A-4B, 4C-4D $$/cy	8,055	x	$1.60	=	$12,888.00
Balanced Construction 1C-1D, 4E-4F $$/station	8,310	x	$0.60	=	$4,986.00
Cut Slope Rounding 1A-1B, 4A-4B $$/Sta	31	x	$37.00	=	$1,147.00
End Haul Excavation 1A-1B, 2A-2B, and 4A-4B	1,012	x	$3.50		$3,542.00
Landing Construction $$/landing	12	x	$338.00	=	$4,056.00
1B, Sta. 8+10 (1A to 1B), 1D, 2B, Sta. 42+85 (2A to 2B), 2D, 2F,					
3B, 3D, 4B, 4D, and 4F.					
Construct "T" Junction (Hrs. D8) 1A-1B	1	x	$147.00	=	$147.00

SUB TOTAL FOR EXCAVATION $27,296

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1A to 1B	2+80	18/CPP	30	$17.64	$529.20			
1A to 1B	7+50	18/CPP	30	$17.64	$529.20			
2A to 2B	1+40	18/CPP	30	$17.64	$529.20			
2A to 2B	3+50	18/CPP	40	$17.64	$705.60			
2A to 2B	9+00	18/CPP	40	$17.64	$705.60			
2A to 2B	11+80	18/CPP	40	$17.64	$705.60			
2A to 2B	13+70	18/CPP	40	$17.64	$705.60			
2A to 2B	16+00	18/CPP	30	$17.64	$529.20			
2A to 2B	18+65	18/CPP	30	$17.64	$529.20			
2A to 2B	22+25	18/CPP	30	$17.64	$529.20			
2A to 2B	28+60	18/CPP	30	$17.64	$529.20			
2A to 2B	34+40	18/CPP	30	$17.64	$529.20			
2A to 2B	37+50	18/CPP	40	$17.64	$705.60			
4A to 4B	3+10	18/CPP	40	$17.64	$705.60			
4A to 4B	6+50	18/CPP	30	$17.64	$529.20			
4A to 4B	10+10	18/CPP	30	$17.64	$529.20			
4A to 4B	16+00	18/CPP	40	$17.64	$705.60			

Subtotal Culverts & Installation: $10,231.20

	Description	Quantity	Rate	Cost
Other/miscellaneous:	Labor 6 hrs. @$38.00 hr. for waste area	6	$38.00	$228.00
	Grass seed mix 25lbs X $1.40/lb	25	$1.40	$35.00
	Straw bales @$10.00 ea. X 20 bales for waste area	20	$10.00	$200.00
Culvert stakes & markers:	Installed 6' Fiberglass Markers @$18.00 each	17	$18.00	$306.00

SUB TOTAL FOR WASTE AREA TREATMENT, CULVERT MATERIALS & INSTALLATION $769

Grand Total: **$49,906**

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Sprague Stump (Dirt Roads)
ROADS: 2C-2D (29+40), 2E-2F (9+00), 3A-3B (1+50), 3C-3D (1+00)

NEW CONSTRUCTION: 40.90 **STATIONS** 0.77 **MILES**
IMPROVEMENT: **STATIONS** 0.00 **MILES**

CLEARING & GRUBBING

Method	Acres/amount		Rate	=	Cost
Scatter Outside of R/W	3.0	x	$1,161.00	=	$3,483.00

SUB TOTAL FOR CLEARING & GRUBBING $3,483

EXCAVATION

Material	Cy/amount/station		Rate	=	Cost
Drift up to 200' 2C-2D $$/Sta	29.4	x	$165.00	=	$4,851.00
Embankment comapaction 2C-2D $$/cy	1,218	x	$0.60	=	$730.80
Cut Slope Rounding 2C-2D $$/Sta	3	x	$37.00	=	$111.00
Balanced construction 2E-2F, 3A-3B, & 3C-3D $$/Sta	11.5	x	$106.00		$1,219.00
Landing Construction $$/landing 2D, 2F, 3B, and 3D	4	x	$338.00	=	$1,352.00

SUB TOTAL FOR EXCAVATION $8,264

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
2C-2D	20+40	18" CPP	30	$17.64	529.2			

Subtotal Culverts & Installation: $529.20

Grand Total: **$12,276**

Project No. 1 New Road Construction

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Sprague Stump
ROAD:

NEW CONSTRUCTION: 101.85 STATIONS 1.93 MILES
IMPROVEMENT: 0.00 STATIONS 0.00 MILES

SURFACING	Description	Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep:	Grade, Shape and Ditch 16'	101.85	x	$21.55	$2,194.87
	Subgrade Compaction	101.85	x	$17.52	$1,784.41

ROAD SEGMENT	1A to 1B			POINT TO POINT 1A to 1B		Sta. to Sta. 0+00 to 13+45					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0"		8	station	50	stations	13.45	673	$7.97	$5,360	
Junctions	4"-0"	1A - T junction	8		40	junctions	1.00	40	$7.97	$319	
Turnouts	4"-0"		8	TO	22	TO's	2	44	$7.97	$351	
Turnarounds	4"-0"		8	TA	24	TA's	1	24	$7.97	$191	
Curve Widening	4"-0"	(0+00 to 0+75)	8			Curves	1	48	$7.97	$383	
Traction Rock	3/4"-0"	(0+00 to 3+00)	3	station	19	stations	3.00	57	$7.97	$454	
Junctions	3/4"-0"	1A - T junction	3		24	junctions	1	24	$7.97	$191	
Curve Widening	3/4"-0"	(0+00 to 0+75)	3			Curves		20	$7.97	$159	
Landings	6"-0"	8+10, 1B		Landing	80	Landings	2	160	$8.63	$1,381	
Total Rock for Road Segment:			1A to 1B					1,090			$8,789

ROAD SEGMENT	1C to 1D			POINT TO POINT 1C to 1D		Sta. to Sta. 0+00 to 3+00					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	6"-0"		12	station	75	stations	3.00	225	$8.63	$1,942	
Junctions	6"-0"	1C	12	junction	20	junctions	1.00	20	$8.63	$173	
Landings	6"-0"	1D		Landing	80	Landings	1	80	$8.63	$690	
Total Rock for Road Segment:			1C to 1D					325			$2,805

ROAD SEGMENT	2A to 2B			POINT TO POINT 2A to 2B		Sta. to Sta. 0+00 to 46+70					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0"		10	station	63	stations	46.70	2,942	$7.97	$23,449	
Junctions	4"-0"	0+00	10	junction	20	junctions	1.00	20	$7.97	$159	
Turnouts	4"-0"	(1+90, 6+60, 10+40, 13+20, 16+80, 21+90, 30+10, 35+30, 38+60, 42+85)	10	TO	28	TO's	10	280	$7.97	$2,232	
Turnarounds	4"-0"	16+80, 41+00	10	TA	24	TA's	2	48	$7.97	$383	
Curve Widening	4"-0"	(3+00 to 3+95), (5+65 to 6+90), (9+90 to 10+65), (11+95 to 12+80), (36+60 to 37+60)	10			Curves	5	212	$7.97	$1,690	
Traction Rock	3/4"-0"	(11+00 to 13+00), (26+20 to 28+20), (31+85 to 41+85)	3	station	19	stations	14.00	266	$7.97	$2,120	
Junctions	3/4"-0"	0+00	3		10	junctions	1	10	$7.97	$80	
Curve Widening	3/4"-0"	(11+95 to 12+80), (36+60 to 37+60)	3			Curves	2	22	$7.97	$175	
Fill Armor	24"-6"	(11+65 to 12+25)				Fills	1	50	$9.65	$483	
Dissipator	24"-6"	3+50, 11+80, 13+70, 18+65,			10	Dissipator	4	40	$9.65	$386	
Ditch armor	6"-0"	40+50 to 41+00			10	Ditch armor	1	10	$8.63	$86	
Landings	6"-0"	Pt. 2B, 42+85		Landing	80	Landings	2	160	$8.63	$1,381	
Total Rock for Road Segment:			2A to 2B					4,060			$32,622

ROAD SEGMENT	4A to 4B			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A to 4B Volume (CY) per		0+00 to 22+90 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0"	0+00 to 22+90	10	station	63	stations	22.90	1,443	$7.97	$11,498	
Junctions	4"-0"	4A	10	junction	12	junctions	1	12	$7.97	$96	
Turnouts	4"-0"	5+10, 9+45, 12+90, 18+00, 20+10		TO	28	TO's	5	140	$7.97	$1,116	
Turnarounds	4"-0"	5+10, 9+45, 18+00	10	TA	24	TA's	3	72	$7.97	$574	
Curve Widening	4"-0"	(12+15 to 13+30), (17+45 to 18+50), 19+75 to 20+50)	10			Curves	3	70	$7.97	$558	
Traction Rock	3/4"-0"	(0+00 to 4+50), (9+90 to 13+90), (19+65 to 21+10)	3	station	19	stations	10.00	190	$7.97	$1,514	
Junctions	3/4"-0"	4A	3	junction	12	junctions	1	12	$7.97	$96	
Turnouts	3/4"-0"	12+90, 20+10	3	TO	8	TO's	2	16	$7.97		
Curve Widening	3/4"-0"	(12+15 to 13+30), (19+75 to 20+50)	3			Curves	3	13	$7.97	$104	
Fill Armor	24"-6"	0+90 to 1+75, 2+90 to 3+60						150			
Landing	6"-0" Pit-run	Sta. 6+80	N/A	landing	80	landings	1	80	$8.63	$690	
Total Rock for Road Segment:			4A to 4B					2,198			$16,245

ROAD SEGMENT	4C to 4D			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C to 4D Volume (CY) per		0+00 to 13+80 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0"	0+00 to 13+80	10	station	63	stations	13.80	869	$7.97	$6,929	
Junctions	4"-0"	4C, 4E	10	junction	24	junctions	2	48	$7.97	$383	
Turnouts	4"-0"	9+15	10	TO	28	TO's	1	28	$7.97	$223	
Turnarounds	4"-0"	12+30	10	TA	24	TA's	1	24	$7.97	$191	
Curve Widening	4"-0"		10			Curves	3	66	$7.97	$526	
Landing	6"-0" Pit-run		N/A	landing	80	landings	1	80	$8.63	$690	
Total Rock for Road Segment:			4C to 4D					1,115			$8,943

ROAD SEGMENT	4E to 4F			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	4E to 4F Volume (CY) per		0+00 to 2+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	6"-0" Pit-run	0+00 to 2+00	12	station	75	stations	2.00	150	$8.63	$1,295	
Landing	6"-0" Pit-run	4F	N/A	landing	80	landings	1	80	$8.63	$690	
Total Rock for Road Segment:			4E to 4F					230			$1,985

	Description		No.sta	Rate/sta	Cost	
Processing:	Water, Process & Compact Crushed Base Rock:		101.9	$49.02	$4,993	
Processing:	Water, Process & Compact Traction Rock:		27.0	$49.02	$1,324	
						$6,316
SUB TOTAL FOR SURFACING						$81,684

SPECIAL PROJECTS

Description	Quantity	Rate	Cost
Geotextile 6 1/2 oz. woven x 12.5' wide (2,140ft) (0+00 to 21+40)	2,140	$1.20	$2,568.00
Armor fill slopes (C330, 9hrs)	9	$144.00	$1,296.00
Develp pit run 1,045cy ($2.30/cy)	1,045	$2.30	$2,403.50
Develp riprap 260cy ($3.70/cy) (includes 20cy for vacating project)	260	$3.70	$962.00
SUB TOTAL FOR SPECIAL PROJECTS			$7,230

	24"-6"	6"-0" pr	4"-0"	3/4"-0"	Total
C/Y SUB TOTAL FOR SURFACING	240	1,045	7,103	630	9,018

GRAND TOTAL **$88,914**

Project No. 1 Road Improvement

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Sprague Stump — **NEW CONSTRUCTION:** 0.00 **STATIONS** 0.00 **MILES**

ROAD: I1-I2 (15+60), I3-I4 (1+00), I5-I6 (34+50) — **IMPROVEMENT:** 51.10 **STATIONS** 0.97 **MILES**

SURFACING

Subgrade prep:

Description	Stations/ amount	x	Rate/ sta/amt	Cost
Grade, Shape and Ditch I1-I2 & I3-I4	16.6	x	$21.55	$357.73
Scatter ditch waste materials	8.6	x	$10.78	$92.71
End haul ditch waste materials	8	x	$79.00	$632.00
Surfacing Rock Processing and Compaction (Subgrade Leveling)	16.6	x	$21.08	$349.93

ROAD SEGMENT I1 to I2 — **POINT TO POINT** I1 to I2 — **Sta. to Sta.** 0+00 to 15+60

Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Subrade Leveling	4"-0" Crushed	I1 to I2	N/A	station		stations		60	$7.97	$478
Surfacing	4"-0" Crushed	I1 to I2	6	station	38	stations	15.60	593	$7.97	$4,725
Traction Rock	3/4"-0" Crushed	0+00-6+00	3	station	19	stations	6.00	114	$7.97	$909
Turnouts	4"-0" Crushed		6	turnout	20	stations	3	60	$7.97	$478
Turnaround	4"-0" Crushed	I2	6	turnaround	10	stations	1	10	$7.97	$80
Junction	3/4"-0" Crushed	I1 & I4	3	junction	10	junctions	2	20	$7.97	$159
Total Rock for Road Segment:				I1 to I2				857		$6,350

ROAD SEGMENT I3 to I4 — **POINT TO POINT** I3 to I4 — **Sta. to Sta.** 0+00 to 1+00

	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Surfacing	4"-0" Crushed	I3 to I4	6	station	38	stations	1.00	38	$7.97	$303
Traction Rock	3/4"-0" Crushed	0+00-1+00	3	station	19	stations	1.00	19	$7.97	$151
Junction	3/4"-0" Crushed	Pt. I3	3	junction	10	junctions	1	10	$7.97	$80
Total Rock for Road Segment:								67		$80

	Description	No.sta	Rate/sta	Cost
Processing:	Water, Process & Compact Crushed Rock	16.6	$49.02	$814
Descripton	Water, Process & Compact Traction Rock	7	$49.02	$343

SUB TOTAL FOR SURFACING $9,019.43

SPECIAL PROJECTS

Description	Hrs.		Rate		
Remove road block and waterbars on I5 to I6 with Dozer. (D6)	2	x	$105.00	=	$210

GRAND TOTAL $9,229.43

C/Y TOTAL FOR SURFACING	24"-6"	6"-0" pr	4"-0"	3/4"-0"	Total
	240	1,045	7,864	793	9,942

J. Long 04/23/2010

PIT RUN ROCK COST

SALE NAME: Sprague's Stump
PROJECT: No. 1
QUARRY: Viewpoint

MATERIAL: Pit Run

DATE: 04/20/2010
BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A to 1B		160		3	1	1.50	1.00	0.30	0.20	7.00
1C to 1D		325		3	1	1.50	1.00	0.30	0.20	7.00
2A to 2B		170		3	2	1.50	1.50	0.50	0.30	8.80
4A to 4B		80		3	2	1.50	1.00	0.50	0.30	8.30
4C to 4D		80		3	2	1.50	1.00	0.50	0.30	8.30
4E to 4F		230		3	2	1.50	1.00	0.40	0.20	8.10
TOTAL		1,045								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL				**3.00**	**1.54**	**1.50**	**1.08**	**0.39**	**0.23**	**7.73**
Average Round Trip Distance (miles)									15.47	

ROCK HAUL:

Truck type:	D20	No. trucks:	
Delay min.:	8	Efficiency:	85%
Truck type:	D12	No. trucks:	6
Delay min.:	6	Efficiency:	85%
Truck type:	D10	No. trucks:	
Delay min.:	5	Efficiency:	85%

Ave haul: $6.24 /cy
Load: $0.84 /cy
Spread: $1.55 /cy

Production: cy/day = 561

PIT RUN ROCK HAUL COSTS 1,045 cy @ **$8.63 /cy**

RIP RAP ROCK COST

SALE NAME: Sprague's Stump
PROJECT: No. 1
QUARRY: Viewpoint
MATERIAL: Rip Rap
DATE: 04/20/2010
BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
2A to 2B		90		3	2	2.00	1.00	0.50	0.30	8.80
4A to 4B		150		3	2	1.50	1.00	0.50	0.30	8.30
V1 to V2		20		3	2	1.50	1.50	0.40	0.40	8.80
TOTAL		260								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL				**3.00**	**2.00**	**1.67**	**1.04**	**0.49**	**0.31**	**8.51**

Average Round Trip Distance (miles) 17.02

ROCK HAUL:

Truck type: D12 No. trucks: 3
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: ______
Delay min.: 5 Efficiency: 85%

Ave haul: $6.96 /cy
Load: $2.69 /cy
Develop: ______ /cy

Production: cy/day = 251

RIP RAP ROCK HAUL COSTS 260 cy @ **$9.65 /cy**

CRUSHED ROCK COST

SALE NAME: Sprague's Stump
PROJECT: No. 1
QUARRY: Viewpoint Stockpile
MATERIAL: Crushed
DATE: 04/20/2010
BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A to 1B	13.45	930		3	1	1.50	1.00	0.30	0.20	7.00
2A to 2B	46.70	3,800		3	2	2.00	1.00	0.50	0.30	8.80
4A to 4B	22.90	1,968		3	2	1.30	0.80	0.50	0.30	7.90
4C to 4D	13.80	1,035		3	2	1.30	0.80	0.50	0.30	7.90
I1 to I2	15.60	857		3	2	1.00	1.00	0.70	0.60	8.30
I3 to I4	1.00	67		3	2	1.00	1.00	0.40	0.20	7.60
V1 to V2		20		3	2	2.00	1.00	0.50	0.30	8.80
TOTAL	113.45	8,677								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL				**3.00**	**1.89**	**1.60**	**0.93**	**0.50**	**0.32**	**8.24**
								Average Round Trip Distance (miles)	16.47	

ROCK HAUL:

Truck type: D20 No. trucks: 2
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 6
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 5 Efficiency: 85%

Ave haul: $6.29 /cy
Load: $0.60 /cy
Spread: $1.08 /cy

Production: cy/day = 795

CRUSHED ROCK HAUL COSTS 8,677 cy @ **$7.97 /cy**

Vacating Cost Summary		
	Total Appraised Cost	
Mobilization	$	1,394.00
V1 to V2	$	13,893.00
V3	$	131.50
V4	$	263.00
Grand Total of Vacating	$	15,682
Do Not Exceed	$	20,000.00

MOVE IN:

Road Segment	Description	Equipment		Cost
V1 to V2	Full mobilization cost	Excavator (C312)	$	699.00
	Move from work on Project 4. Secondary Mobilization	Excavator (C330)	$	610.00
	Move from work on V3 and V4. Cost included in V3 mobilization.	Excavator (C312)		
V3	Move from work on area 4 roads. 1 hr.	Excavator (C312)	$	85.00
V4	Move from V3. Cost included in V3 mobilization	Excavator (C312)		
		TOTAL	$	1,394.00

Sprague's Stump

Sprague's Stump Vacating. Project No. 2 Vacating. V1 to V2

Location/Description	C330	C312	10-12cy DT	Laborer	Timber Faller	Straw	Seed	Other
0+00 Place 20cy 36"-12" riprap to block road.		1						
0+00 to 22+80 - Vacate mobilized from V1 Waterbar road.		3		3		10	15	
4+70 Remove culvert. Install new 12"x30' culvert. 20 cy 3/4"-0" for bedding/backfill		3		1		2	5	$ 300.00
17+00 Temporary crossing for C312. Remove fill, pullback fill slopes. Redevelop stream channel.		1 2		1		5	10	
19+20 Breach fill. Pullback fill edges. Establish drainage. Slope and compact waste.		2		1		5	10	
22+80 Pullback south fill slope. Slope and compact waste.		2		1		5	10	
22+80 to 83+00 - Vacate mobilized from V2 Walk machine from V2 (83+00) to 22+80 Waterbar road.		2 6		8		20	30	
22+80 Pullback north fill slope. Slope and compact waste.		2		1		5	10	
35+80 Remove culvert. Establish drainage.		0.5		0.5		1	2	
44+70 Remove culvert. Establish drainage.		0.5		0.5		1	2	
50+20 Breach fill. Pullback fill edges. Establish drainage. Slope and compact waste.		3		1		4	10	

54+60 Remove culvert. Establish drainage.		0.5		0.5		1	2	
58+30 Breach fill. Pullback fill edges. Establish drainage. Slope and compact waste		2		1		4	10	
60+40 Pullback fill slopes. Slope and compact waste.		1		1		4	10	
65+60 to 67+40 Construct temporary access Reslope material on exit		1 1		1		5	10	
65+60 to 66+70 Sidecast pullback		1		1		4	10	
70+40 Remove fill reachable with C330 excavator and only to amount acceptable for waste areas. Slope and compact waste with C312.	20	20		6	4	15	20	
78+60 Remove culvert. Establish drainage.		0.5		0.5		1	2	
Development of waste areas. Clearing, sloping, compacting, mulching Timber removal from fill at 70+40	5	5		4		10	20	
Rewaterbarring temporary access, refueling extra cost for staging straw	5	5		8		10	20	
Haul and dispose of removed culverts		2	4					
	30 $ 4,320.00	67 $5,695.00	4 $ 292.00	41 $ 1,558.00	4 $ 192.00	112 $1,120.00	208 $ 416.00	300 $ 300.00

Total Estimated Cost $13,893.00

Sprague's Stump

Sprague's Stump Vacating. Project No. 2 Vacating. V3

Location/Description	312	330#2	D-8 CAT	10 CY Truck #1	10 CY Truck #2	Front End Loader	Grader	Laborer	Straw	Seed	Lowboy Transport
Point V3 Access. Remove culvert. Establish drainage	1							0.5	2	4	
	1	0	0	0	0	0	0	0.5	2	4	0
	$ 85.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 18.50	$ 20.00	$ 8.00	$ -

Total Estimated Cost $ 131.50

Sprague's Stump

Sprague's Stump Vacating. Project No. 2 Vacating. V4

Location/Description	312	330#2	D-8 CAT	10 CY Truck #1	10 CY Truck #2	Front End Loader	Grader	Laborer	Straw	Seed	Lowboy Transport
Point V4 Access. Remove fill. Develop minimum 4' stream channel	2							1	4	8	
	2	0	0	0	0	0	0	1	4	8	0
	$ 170.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 37.00	$ 40.00	$ 16.00	$ -

Total Estimated Cost $ 263.00

Sprague's Stump
341-11-26

T. Williams
4/28/10

Stream Enhancement Appraisal

		Hours	Rate/Hr.	Total
Tree Removal/Harvest				
	Excavator	20	$144	**$5,260.00**
	Laborer	20	$38	
Tree Transportation to Site				**$2,380.00**
	Off-Road Dump	20	$119	
Place Trees at Sites				**$1,656.00**
Site #1	Excavator	1.0		
Site #2	Excavator	1.5		
Site #3	Excavator	2.0		
Site #4	Excavator	2.5		
Site #5	Excavator	3.0		
Site #6	Excavator	1.5		
	Total Excavator Hrs.	11.5	$144	
Mulch Site				**$484.00**
	Straw Bales	18	$10	
	Laborer	8	$38	
Move In				
	Excavator			**$1,220.00**
	Off-Road Dump			**$672.00**
			Grand Total	**$11,672.00**

Sprague's Stump
341-10-06

T. Williams
1/28/10

Gate Cost Appraisal

				Total
Gates	w/ Lock Box	1	$6,600	$6,600.00
Develop & Haul Riprap				
	Excavator	1	$94	$186.00
	Dump Truck w/Tilt Trailer	1	$92	
Set Gates & Place Riprap				$282.00
	Excavator	3	$94	
Haul Gates		2	$92	$184.00
Move In				
	Excavator On Tilt Trailer			$188.00
Total				**$7,440.00**

Road Maintenance after completion of Projects

Sale: Sprague's Stump
Date: 27-Apr-10
By: J. McCoy

Type	Equipment/Rationale			Hours	Rate	Cost	
	Grader 14G			50	$93	$4,650	
Final Haul	Dump Truck 12CY (X3)			30	$73	$2,190	
Road	FE Loader C966			10	$77	$770	
Maintenance	Vibratory Roller			50	$72	$3,600	
Haul Route	Water Truck 2,500 gallon			40	$83	$3,320	
Total							$14,530

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	8.0	5.3
Vibratory Roller	1.5	8.0	5.3

Road Maintenance Cost Summary

Sale: Sprague's Stump
Date: 29-Apr-09
By: J.McCoy

MBF: 9,090
$$/MBF: $2.88

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	$675	1	12	$93	$1,791
	Dump Truck 12CY x 2	$141	2	16	$73	$1,450
	FE Loader C966	$675	1	8	$77	$1,291
Progressive Operations 2nd Entry	Grader 14G	$675	1	12	$93	$1,791
	Dump Truck 12CY x 2	$141	2	16	$73	$2,336
	FE Loader C966	$675	1	8	$77	$1,291
Final Road Maintenance	Grader 14G	$675	1	43	$93	$4,705
	Dump Truck 12CY x 4	$141	4	40	$73	$3,484
	FE Loader C966	$675	1	10	$77	$1,445
	Vibratory Roller*	$675	1	40	$72	$3,555
	Water Truck 2,500 gallon	$165	1	30	$83	$2,655
	Labor			10	$37	$370
Total						$26,164

Production Rates

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	3.0	1.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	3.0	1.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	6.5	4.3
Vibratory Roller*	1.5	6.5	4.3

*Final Road Maintenance Only

Sprague's Stump
TIMBER CRUISE REPORT
FY 2010

1. **Sale Area Location:** Areas 1, 2, 3, 4, and 5 R/W are located in portions of Sections 4, 9, and 16, T6N, R6W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%
   Tax Code 8-01 (100%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	101.0	1.0	4.0	4.0	92.0	GIS
2	Modified Clearcut	114.0	0.0	7.0	14.0	93.0	GIS
3	Modified Clearcut	54.0	1.5	0.5	0.0	52.0	GIS
4	Modified Clearcut	51.0	0.5	1.5	2.0	47.0	GIS
5 R/W	Right-of-way	13.0	0.0	0.0	0.0	13.0	GIS
TOTALS		**333.0**	**3.0**	**13.0**	**20.0**	**297.0**	

4. Cruisers and Cruise Dates: Areas 1, 2, 3, and 4 were cruised by Derek Bangs, Jon Long, Jasen McCoy, Kevin Berry, Bryce Rodgers, Kraig Kirkpatrick, Cullen Bangs, Jay Morey, Eric Burgher, and Ty Wiliams, March 17 and 18, 2010.

5. Cruise Method and Computation:
Area 1 is an "auto-mark" thinning unit (SDI 35), and was variable plot cruised using a 40 BAF. These plots are located on a 4 chain by 10 chain grid, with every other plot measured and graded. A total of 27 plots were sampled, with 16 measured and graded plots, and 11 count plots. Cedar and alder are reserve species, and were recorded as "leave" trees. The "biggest and best" trees were recorded as "leave" trees to meet a target residual basal area of 140 ft^2/acre. Hardwoods do not count towards the residual basal area.

Areas 2, 3, and 4 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 8 chain grid, with every third plot measured and graded. A total of 82 plots were sampled, with 38 measured and graded plots, and 44 count plots. Cedar is a reserve species, and was recorded as "leave" trees.

Area 5 R/W The right-of-way volume within the harvest areas was calculated by multiplying the R/W acreage and the average volume per acre from the plots in Areas 2 through 4. In-sale right-of-way totals 13 acres. There is no merchantable timber within the right-of-way outside the sale areas.

All cruisers used Corvallis MicroTechnology (CMT) and/or Allegro data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

AREA	CRUISE	TRACT	TYPE	ACRES
1	06N06W SEC 04	AREA1	TAKE	92
2, 3, and 4	06N06W SEC 16	AREAS234	TAKE	192
5 R/W	06N06W SEC 16	AREA5	RW	13

6. Timber Description:
Area 1 is an "auto-mark" thinning unit, approximately 60 years old, consisting of Douglas-fir stands mixed with the occasional western hemlock, red alder, and cedar. This stand will be thinned to a SDI of 35 (140 Sq.Ft.BA), removing approximately 70 trees per acre and 19 MBF/acre. The average conifer "take" tree size is 17 inches DBH and 77 feet to a merchantable top (6 inch d.i.b.).

Areas 2, 3, and 4 are modified clearcut units, approximately 50 to 60 year-old, consisting of Douglas-fir, western hemlock, red alder, and cedar. The average Douglas-fir tree size to be harvested is 21 inches DBH, with an average height of 75 feet to a merchantable top (6 inch d.i.b.). The average hemlock tree size is 12 inches DBH and 28 feet to a merchantable top (6 inch d.i.b.). The average alder tree size is 13 inches DBH and 40 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested (net) is 35.7 MBF.

Area 5 R/W is similar to the timber description mentioned above for Areas 2, 3, and 4. The average volume (net) is approximately 36.8 MBF/acre.

7. Statistical Analysis and Stand Summary: (See "Statistics" - Type Reports, attached)

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (PC)	50%	12%	21.8%	4.3%
2, 3, 4 (MC)	60%	8%	61.8%	6.8%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and two cruise types).
Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	CampRun	% D & B	% Sale
Douglas-fir	20"	8,597	6,689	1,705	203	0	1%	95%
Hemlock/True-Fir	14"	128	69	38	21	0	<1%	1%
Alder and other Hardwoods	13"	364	0	0	0	364	<1%	4%
Cedar	21"	1	1	0	0	0	<1%	<1%
TOTALS		**9,090**	**6,759**	**1,743**	**224**	**364**		

9. Approvals:

Prepared by: Jasen McCoy **Date:** April 12, 2010

Unit Forester Approval: [signature] **Date:** 4/12/10

10. Attachments:

Cruise Designs and Maps - 6 pages
Volume Reports - 4 pages
Statistics Reports - 11 pages
Log Stock Tables - 3 pages
Stand Table Summary – 1 pages

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: _Sprague's Stump_ **Area(s)** __1_____

Harvest Type: (PC)

Approx. Cruise Acres: _98_ **Estimated CV%** _50_ Net BF **SE% Objective** 12 Net BF

Planned Sale Volume: 630MBF **Estimated Sale Area Value/Acre:** $6,400/Ac
(16 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum _60__ conifer:
(b) Sample_24_ cruise plots (_12_ grade/_12count); (c) Other goals ___X__Determine "automark" thinning standards; __X_ Determine log grades for sale value;
_XDetermine snag and leave tree species and sizes.

B. Cruise Design:

1. **Plot Cruises:** BAF _40_(Full point; Half point) (circle one)
   Cruise Line Direction(s) N-S
   Cruise Line Spacing __10___ (chains)
   Cruise Plot Spacing __4__ (chains)
   Grade/Count Ratio _1:1__

The BA target is 140 sqft. Alternate leaving 3 to 4 trees every other plot. All cedar are leave trees. Record all hardwood as camp run. Record all snags as SN and record total height. If plot lands in buffer then offset at least ½ chain outside the buffer. **Safety:** watch out for old fence lines

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is _8"_ for conifers and _10"_ for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is_7"_ for conifers and_7"_ for hardwoods or _40__% of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

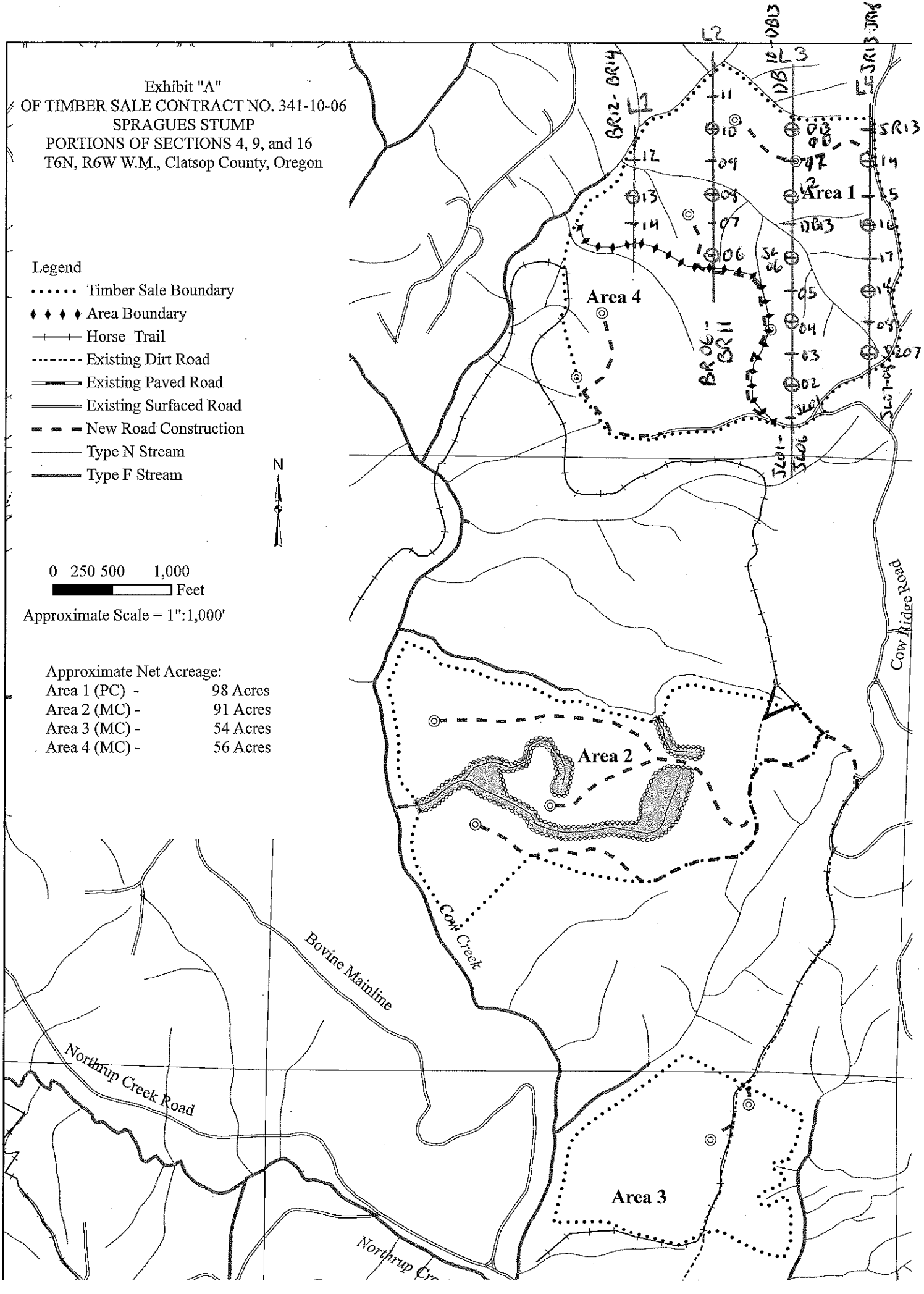
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Kevin Berry
Approved by: 3/15/10
Date: 3/4/10

Exhibit "A"
OF TIMBER SALE CONTRACT NO. 341-10-06
SPRAGUES STUMP
PORTIONS OF SECTIONS 4, 9, and 16
T6N, R6W W.M., Clatsop County, Oregon



Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Sprague's Stump **Area(s)** 2,3,4

Harvest Type: (MC)

Approx. Cruise Acres: 201 **Estimated CV%** 60 Net BF **SE% Objective** 8 Net BF

Planned Sale Volume: 8,040 **Estimated Sale Area Value/Acre:** $16,000/Ac
(40 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer:
(b) Sample 84 cruise plots (28 grade/ 56 count); (c) Other goals ___Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
   Cruise Line Direction(s) N-S
   Cruise Line Spacing 8 (chains)
   Cruise Plot Spacing 3 (chains)
   Grade/Count Ratio 1:2

All cedar are leave trees. Record all hardwood as camp run. Record all snags as SN and record total height. If plot lands in buffer then offset at least ½ chain outside the buffer. Be aware of high amount of defect in Area 2. **Safety:** watch out for old fence lines

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

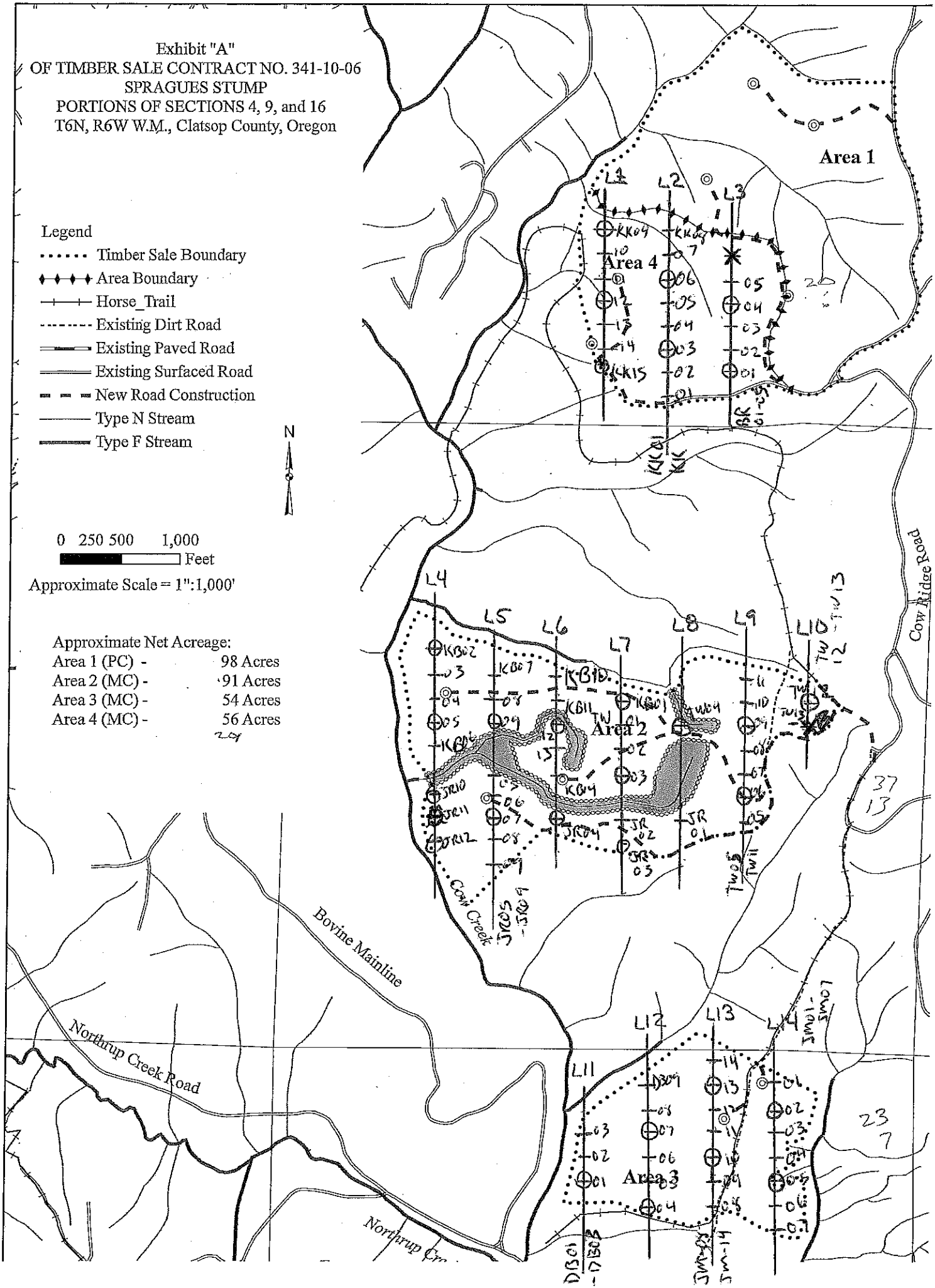
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Kevin Berry
Approved by: 3/15/10
Date: 3/4/10

Exhibit "A"
OF TIMBER SALE CONTRACT NO. 341-10-06
SPRAGUES STUMP
PORTIONS OF SECTIONS 4, 9, and 16
T6N, R6W W.M., Clatsop County, Oregon



Legend

- Timber Sale Boundary
- Area Boundary
- Horse_Trail
- Existing Dirt Road
- Existing Paved Road
- Existing Surfaced Road
- New Road Construction
- Type N Stream
- Type F Stream

0 250 500 1,000 Feet

Approximate Scale = 1":1,000'

Approximate Net Acreage:

Area 1 (PC) -	98 Acres
Area 2 (MC) -	91 Acres
Area 3 (MC) -	54 Acres
Area 4 (MC) -	56 Acres

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

TT6N RR6W S04 TyTAK	92.00
TT6N RR6W S16 TyRW	13.00
TT6N RR6W S16 TyTAK	192.00

Project: SPRAGSTU
Acres 297.00

Page 1
Date 4/9/2010
Time 1:22:25PM

Spp	S T	So Grt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DOCU														8		0.00	6.4
D		DO2S	77	1.1	22,772	22,521	6,689		1	50	49	1	2	27	69	37	344	2.10	65.5
D		DO3S	20	1.4	5,821	5,741	1,705	2	96	2	0	1	9	41	50	34	82	0.73	69.6
D		DO4S	3	2.4	700	683	203	12	88			43	42	15		22	28	0.44	24.8
D	**Totals**		95	1.2	29,293	28,946	8,597	1	22	39	38	2	4	30	64	32	174	1.31	166.3
H		DO2S	51		190	190	56			29	71			29	71	36	325	2.03	.6
H		DO3S	30		109	109	32	15	1	84				95	5	32	97	0.96	1.1
H		DO4S	19		69	69	20		100			100				17	31	0.49	2.2
H	**Totals**		1		367	367	109	4	19	40	37	19		43	38	24	94	1.02	3.9
A		DOCR	100	.5	1,204	1,198	356		95	5		12	5	21	62	31	66	0.67	18.1
A	**Totals**		4	.5	1,204	1,198	356		95	5		12	5	21	62	31	66	0.67	18.1
M		DOCR	100	18.4	35	29	9		100					50	50	34	44	0.82	.6
M	**Totals**		0	18.4	35	29	9		100					50	50	34	44	0.82	.6
NF		DO2S	63	5.0	43	41	12			100					100	40	190	1.22	.2
NF		DO3S	30		19	19	6		100					100		32	90	0.72	.2
NF		DO4S	7		4	4	1		100			100				16	20	0.38	.2
NF	**Totals**		0	3.2	66	64	19		37	63		7		30	63	29	100	0.89	.6
C		DO2S	80		1	1	0		100				100			28	120	1.96	.0
C		DO3S	20		0	0	0	100					100			28	30	0.43	.0
C	**Totals**		0		1	1	0	20	80				100			28	75	1.20	.0
Totals				1.2	30,967	30,605	9,090	1	25	38	37	3	4	30	63	32	161	1.24	189.7

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRAGSTU

Page 1
Date 4/9/2010
Time 1:23:00PM

TT6N RR6W S04 TTAKE

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
T6N	R6W	04	AREA1	TAKE	92.00	27	38	1	W

TT6N RR6W S04 TTAKE

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU														6		0.00	5.8
D		DO	2S	55	2.2	10,349	10,125	931		3	86	11		3	38	59	36	249	1.63	40.7
D		DO	3S	41	1.4	7,741	7,632	702	1	99			0	6	46	47	34	84	0.66	90.7
D		DO	4S	4		604	604	56		100			34	66			20	27	0.39	22.4
D	**Totals**			97	1.8	18,694	18,361	1,689	0	46	47	6	1	6	40	52	32	115	0.92	159.6
H		DO	2S	94		613	613	56			29	71			29	71	36	325	2.03	1.9
H		DO	4S	6		38	38	3		100			100				20	40	0.75	.9
H	**Totals**			3		651	651	60		6	28	67	6		28	67	31	230	1.75	2.8
Type Totals					1.7	19,345	19,012	1,749	0	45	47	8	1	6	40	53	32	117	0.93	162.4

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRAGSTU

Date 4/9/2010

Time 1:23:42PM

TT6N RR6W S16 TTAKE

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
T6N	R6W	16	AREAS234	TAKE	192.00	82	159	1	W

TT6N RR6W S16 TTAKE

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU														8		0.00	6.5
D		DO	2S	83	.9	28,286	28,022	5,380		1	44	55	2	2	26	71	37	366	2.21	76.6
D		DO	3S	14	1.3	4,956	4,890	939	2	94	4	0	2	11	37	51	34	81	0.77	60.1
D		DO	4S	3	3.2	744	720	138	16	84			47	33	21		22	28	0.46	26.0
D	**Totals**			94	1.0	33,986	33,633	6,457	1	16	37	46	3	4	27	66	33	199	1.47	169.2
A		DO	CR	100	.5	1,745	1,736	333		95	5		12	5	21	62	31	66	0.67	26.2
A	**Totals**			5	.5	1,745	1,736	333		95	5		12	5	21	62	31	66	0.67	26.2
H		DO	3S	66		157	157	30	16		84				100		32	95	0.95	1.7
H		DO	4S	34		80	80	15		100			100				16	30	0.44	2.7
H	**Totals**			1		238	238	46	10	34	56		34		66		22	55	0.72	4.3
M		DO	CR	100	18.4	51	42	8		100					50	50	34	44	0.82	.9
M	**Totals**			0	18.4	51	42	8		100					50	50	34	44	0.82	.9
NF		DO	2S	63	5.0	62	59	11			100					100	40	190	1.22	.3
NF		DO	3S	30		28	28	5		100					100		32	90	0.72	.3
NF		DO	4S	7		6	6	1		100			100				16	20	0.38	.3
NF	**Totals**			0	3.2	96	93	18		37	63		7		30	63	29	100	0.89	.9
Type Totals					1.0	36,116	35,741	6,862	1	20	36	43	3	4	27	66	32	177	1.35	201.6

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRAGSTU

Date 4/9/2010

Time 1:23:26PM

TT6N RR6W S16 TRW

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
T6N	R6W	16	AREA5	RW	13.00	82	168	1	W

TT6N RR6W S16 TRW

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU														11		0.00	8.0
D		DO	2S	83	.9	29,256	28,996	377		1	43	56	2	2	24	72	37	370	2.23	78.4
D		DO	3S	14	1.3	5,000	4,936	64	2	94	4	0	1	11	36	51	34	81	0.77	60.6
D		DO	4S	3	3.2	723	699	9	16	84			47	33	21		22	28	0.46	25.2
D	**Totals**			94	1.0	34,979	34,632	450	1	16	36	47	3	4	26	68	33	201	1.47	172.2
A		DO	CR	100	.5	1,745	1,736	23		95	5		12	5	21	62	31	66	0.67	26.2
A	**Totals**			5	.5	1,745	1,736	23		95	5		12	5	21	62	31	66	0.67	26.2
H		DO	3S	58		161	161	2		20	80				20	80	36	125	1.01	1.3
H		DO	4S	42		114	114	1		100			100				16	30	0.47	3.8
H	**Totals**			1		275	275	4		53	47		42		12	47	21	54	0.70	5.1
M		DO	CR	100	18.4	51	42	1		100					50	50	34	44	0.82	.9
M	**Totals**			0	18.4	51	42	1		100					50	50	34	44	0.82	.9
NF		DO	2S	63	5.0	62	59	1			100					100	40	190	1.22	.3
NF		DO	3S	30		28	28	0		100					100		32	90	0.72	.3
NF		DO	4S	7		6	6	0		100			100				16	20	0.38	.3
NF	**Totals**			0	3.2	96	93	1		37	63		7		30	63	29	100	0.89	.9
C		DO	2S	80		24	24	0		100				100			28	120	1.96	.2
C		DO	3S	20		6	6	0	100					100			28	30	0.43	.2
C	**Totals**			0		30	30	0	20	80				100			28	75	1.20	.4
Type Totals					1.0	37,176	36,807	478	1	20	35	44	4	4	25	67	32	179	1.36	205.9

TC PSTATS

PROJECT STATISTICS

PROJECT SPRAGSTU

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	04	AREA1	00PC	92.00	27	182	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	27	182	6.7		
CRUISE	16	93	5.8	11,557	.8
DBH COUNT					
REFOREST					
COUNT	11	75	6.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	43	42.6	24.1	101		134.8	29,279	28,844	6,686	6,686
DOUG FIR	37	68.8	17.0	76		108.1	18,694	18,361	4,667	4,667
SNAG	9	7.3	18.3	86		13.3				
HEMLEAV	1	2.7	20.0	92		5.9	1,358	1,358	299	299
ALDRLEAV	2	3.3	15.6	58		4.4	468	468	135	135
WHEMLOCK	1	.9	24.0	95		3.0	651	651	152	152
TOTAL	*93*	*125.6*	*19.8*	*85*		*269.6*	*50,450*	*49,682*	*11,939*	*11,939*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUGLEAV	45.1	6.9	725	779	832			
DOUG FIR	55.7	9.2	320	353	385			
SNAG								
HEMLEAV								
ALDRLEAV	37.7	35.3	97	150	203			
WHEMLOCK								
TOTAL	*73.4*	*7.6*	*477*	*516*	*556*	*215*	*54*	*24*

CL 68.1	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUGLEAV	19.5	3.8	41	43	44			
DOUG FIR	70.5	13.8	59	69	78			
SNAG	347.3	68.1	2	7	12			
HEMLEAV	244.4	47.9	1	3	4			
ALDRLEAV	294.7	57.8	1	3	5			
WHEMLOCK	360.3	70.6	0	1	2			
TOTAL	*28.9*	*5.7*	*119*	*126*	*133*	*35*	*9*	*4*

CL 68.1	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUGLEAV	20.4	4.0	129	135	140			
DOUG FIR	62.2	12.2	95	108	121			
SNAG	288.2	56.5	6	13	21			
HEMLEAV	244.4	47.9	3	6	9			
ALDRLEAV	288.2	56.5	2	4	7			
WHEMLOCK	360.3	70.6	1	3	5			
TOTAL			*270*	*270*	*270*			

CL 68.1	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUGLEAV	24.1	4.7	27,481	28,844	30,208			
DOUG FIR	66.8	13.1	15,958	18,361	20,764			
SNAG								
HEMLEAV	244.4	47.9	708	1,358	2,009			

TC PSTATS

PROJECT STATISTICS

PROJECT **SPRAGSTU**

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	04	AREA1	00PC	92.00	27	182	1	W

CL 68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
ALDRLEAV	288.3	56.5	203	468	732			
WHEMLOCK	360.3	70.6	191	651	1,110			
TOTAL	*22.1*	*4.3*	*47,532*	*49,682*	*51,831*	*20*	*5*	*2*

TC PSTATS

PROJECT STATISTICS

PROJECT SPRAGSTU

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	16	AREAS234	00CC	192.00	82	528	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	82	528	6.4		
CRUISE	38	179	4.7	20,374	.9
DBH COUNT					
REFOREST					
COUNT	44	304	6.9		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	140	76.2	21.2	75		187.4	33,986	33,633	8,070	8,067
R ALDER	14	21.3	13.3	40		20.7	1,745	1,736	547	547
DOUGLEAV	7	1.5	25.3	87		5.4	983	981	217	217
SNAG	11	1.4	26.0	43		5.1				
WHEMLOCK	2	3.5	12.4	28		2.9	238	238	69	69
BL MAPLE	2	.9	16.9	34		1.5	51	42	26	26
HEMLEAV	1	.7	11.0	17		.5	22	22	6	6
NOB FIR	1	.3	17.0	91	0	.5	96	93	24	24
CEDLEAV	1	.2	21.0	58		.5	30	30	14	14
TOTAL	*179*	*106.1*	*19.7*	*65*		*224.4*	*37,151*	*36,774*	*8,973*	*8,971*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	70.5	6.0	594	632	670			
R ALDER	53.7	14.9	78	91	105			
DOUGLEAV	79.9	32.5	593	879	1,164			
SNAG								
WHEMLOCK	102.9	96.3	4	110	216			
BL MAPLE	15.7	14.7	38	45	52			
HEMLEAV								
NOB FIR								
CEDLEAV								
TOTAL	*87.2*	*6.5*	*508*	*543*	*579*	*303*	*76*	*34*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	78.3	8.6	70	76	83			
R ALDER	318.3	35.1	14	21	29			
DOUGLEAV	372.1	41.1	1	2	2			
SNAG	345.4	38.1	1	1	2			
WHEMLOCK	432.7	47.7	2	4	5			
BL MAPLE	671.6	74.1	0	1	2			
HEMLEAV	905.5	99.9	0	1	1			
NOB FIR	905.5	99.9	0	0	1			
CEDLEAV	905.5	99.9	0	0	0			
TOTAL	*71.7*	*7.9*	*98*	*106*	*115*	*205*	*51*	*23*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	67.8	7.5	173	187	201			
R ALDER	313.7	34.6	14	21	28			
DOUGLEAV	366.0	40.4	3	5	8			
SNAG	313.0	34.5	3	5	7			

PROJECT STATISTICS

PROJECT SPRAGSTU

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	16	AREAS234	00CC	192.00	82	528	1	W

CL 68.1 SD: 1.00	COEFF VAR.	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	417.6	46.1	2	3	4			
BL MAPLE	671.6	74.1	0	1	3			
HEMLEAV	905.5	99.9	0	0	1			
NOB FIR	905.5	99.9	0	0	1			
CEDLEAV	905.5	99.9	0	0	1			
TOTAL	*52.6*	*5.8*	*211*	*224*	*237*	*111*	*28*	*12*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.5	7.8	31,017	33,633	36,248			
R ALDER	318.7	35.2	1,125	1,736	2,346			
DOUGLEAV	394.3	43.5	554	981	1,408			
SNAG								
WHEMLOCK	423.3	46.7	127	238	349			
BL MAPLE	671.6	74.1	11	42	73			
HEMLEAV	905.5	99.9	0	22	44			
NOB FIR	905.5	99.9	0	93	186			
CEDLEAV	905.5	99.9	0	30	61			
TOTAL	*63.3*	*7.0*	*34,208*	*36,774*	*39,341*	*160*	*40*	*18*

TC PSTATS

PROJECT STATISTICS

PROJECT SPRAGSTU

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	04	AREA1	TAKE	92.00	27	75	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	27	75	2.8		
CRUISE	12	38	3.2	6,416	.6
DBH COUNT					
REFOREST					
COUNT	12	37	3.1		
BLANKS	3				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	37	68.8	17.0	76		108.1	18,694	18,361	4,667	4,667
WHEMLOCK	1	.9	24.0	95		3.0	651	651	152	152
TOTAL	*38*	*69.7*	*17.1*	*77*		*111.1*	*19,345*	*19,012*	*4,819*	*4,819*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	55.7	9.2	320	353	385			
WHEMLOCK								
TOTAL	*55.7*	*9.0*	*329*	*362*	*394*	*124*	*31*	*14*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.5	13.8	59	69	78			
WHEMLOCK	360.3	70.6	0	1	2			
TOTAL	*68.8*	*13.5*	*60*	*70*	*79*	*196*	*49*	*22*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	62.2	12.2	95	108	121			
WHEMLOCK	360.3	70.6	1	3	5			
TOTAL	*60.2*	*11.8*	*98*	*111*	*124*	*150*	*38*	*17*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	66.8	13.1	15,958	18,361	20,764			
WHEMLOCK	360.3	70.6	191	651	1,110			
TOTAL	*64.8*	*12.7*	*16,597*	*19,012*	*21,427*	*174*	*44*	*19*

TC PSTATS

PROJECT STATISTICS

PROJECT SPRAGSTU

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	16	AREAS234	TAKE	192.00	82	501	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	82	501	6.1		
CRUISE	33	159	4.8	19,634	.8
DBH COUNT					
REFOREST					
COUNT	49	327	6.7		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	140	76.2	21.2	75		187.4	33,986	33,633	8,070	8,067
R ALDER	14	21.3	13.3	40		20.7	1,745	1,736	547	547
WHEMLOCK	2	3.5	12.4	28		2.9	238	238	69	69
BL MAPLE	2	.9	16.9	34		1.5	51	42	26	26
NOB FIR	1	.3	17.0	91	0	.5	96	93	24	24
TOTAL	*159*	*102.3*	*19.5*	*66*		*213.0*	*36,116*	*35,741*	*8,736*	*8,734*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	70.5	6.0	594	632	670			
R ALDER	53.7	14.9	78	91	105			
WHEMLOCK	102.9	96.3	4	110	216			
BL MAPLE	15.7	14.7	38	45	52			
NOB FIR								
TOTAL	*79.8*	*6.3*	*533*	*568*	*604*	*254*	*64*	*28*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	78.3	8.6	70	76	83			
R ALDER	318.3	35.1	14	21	29			
WHEMLOCK	432.7	47.7	2	4	5			
BL MAPLE	671.6	74.1	0	1	2			
NOB FIR	905.5	99.9	0	0	1			
TOTAL	*74.7*	*8.2*	*94*	*102*	*111*	*223*	*56*	*25*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	67.8	7.5	173	187	201			
R ALDER	313.7	34.6	14	21	28			
WHEMLOCK	417.6	46.1	2	3	4			
BL MAPLE	671.6	74.1	0	1	3			
NOB FIR	905.5	99.9	0	0	1			
TOTAL	*57.6*	*6.4*	*199*	*213*	*226*	*133*	*33*	*15*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.5	7.8	31,017	33,633	36,248			
R ALDER	318.7	35.2	1,125	1,736	2,346			
WHEMLOCK	423.3	46.7	127	238	349			
BL MAPLE	671.6	74.1	11	42	73			
NOB FIR	905.5	99.9	0	93	186			
TOTAL	*63.8*	*7.0*	*33,224*	*35,741*	*38,257*	*163*	*41*	*18*

TC PSTATS

PROJECT STATISTICS

PROJECT SPRAGSTU

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	16	AREA5	RW	13.00	82	514	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	82	514	6.3		
CRUISE	33	168	5.1	1,356	12.4
DBH COUNT					
REFOREST					
COUNT	49	331	6.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	147	77.0	21.4	76		192.7	34,979	34,632	8,273	8,271
R ALDER	14	21.3	13.3	40		20.7	1,745	1,736	547	547
WHEMLOCK	3	4.5	11.9	25		3.4	275	275	75	75
BL MAPLE	2	.9	16.9	34		1.5	51	42	26	26
NOB FIR	1	.3	17.0	91	0	.5	96	93	24	24
WR CEDAR	1	.2	21.0	58		.5	30	30	14	14
TOTAL	*168*	*104.3*	*19.6*	*66*		*219.3*	*37,176*	*36,807*	*8,959*	*8,957*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	71.6	5.9	606	644	682			
R ALDER	53.7	14.9	78	91	105			
WHEMLOCK	122.9	85.0	15	103	191			
BL MAPLE	15.7	14.7	38	45	52			
NOB FIR								
WR CEDAR								
TOTAL	*81.2*	*6.3*	*540*	*576*	*612*	*263*	*66*	*29*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	76.9	8.5	71	77	84			
R ALDER	318.3	35.1	14	21	29			
WHEMLOCK	388.6	42.9	3	4	6			
BL MAPLE	671.6	74.1	0	1	2			
NOB FIR	905.5	99.9	0	0	1			
WR CEDAR	905.5	99.9	0	0	0			
TOTAL	*74.3*	*8.2*	*96*	*104*	*113*	*220*	*55*	*24*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	66.7	7.4	179	193	207			
R ALDER	313.7	34.6	14	21	28			
WHEMLOCK	377.3	41.6	2	3	5			
BL MAPLE	671.6	74.1	0	1	3			
NOB FIR	905.5	99.9	0	0	1			
WR CEDAR	905.5	99.9	0	0	1			
TOTAL	*56.6*	*6.2*	*206*	*219*	*233*	*128*	*32*	*14*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	69.9	7.7	31,961	34,632	37,303			
R ALDER	318.7	35.2	1,125	1,736	2,346			
WHEMLOCK	396.1	43.7	155	275	396			
BL MAPLE	671.6	74.1	11	42	73			

PROJECT STATISTICS

PROJECT SPRAGSTU

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	16	AREA5	RW	13.00	82	514	1	W

CL 68.1			NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.00	COEFF VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
NOB FIR	905.5	99.9	0	93	186			
WR CEDAR	905.5	99.9	0	30	61			
TOTAL	*63.2*	*7.0*	*34,242*	*36,807*	*39,373*	*159*	*40*	*18*

TC PSTATS

PROJECT STATISTICS

PROJECT SPRAGSTU

DATE 5/6/2010

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T6N	R6	04	AREA1	LEAV	92.00	27	107	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	27	107	4.0		
CRUISE	16	55	3.4	5,141	1.1
DBH COUNT					
REFOREST					
COUNT	11	42	3.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	43	42.6	24.1	101		134.8	29,279	28,844	6,686	6,686
SNAG	9	7.3	18.3	86		13.3				
HEMLEAV	1	2.7	20.0	92		5.9	1,358	1,358	299	299
ALDRLEAV	2	3.3	15.6	58		4.4	468	468	135	135
TOTAL	*55*	*55.9*	*22.8*	*96*		*158.5*	*31,105*	*30,670*	*7,120*	*7,120*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	45.1	6.9	725	779	832			
SNAG								
HEMLEAV								
ALDRLEAV	37.7	35.3	97	150	203			
TOTAL	*69.7*	*9.4*	*565*	*623*	*682*	*194*	*48*	*22*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	19.5	3.8	41	43	44			
SNAG	347.3	68.1	2	7	12			
HEMLEAV	244.4	47.9	1	3	4			
ALDRLEAV	294.7	57.8	1	3	5			
TOTAL	*21.1*	*4.1*	*54*	*56*	*58*	*19*	*5*	*2*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	20.4	4.0	129	135	140			
SNAG	288.2	56.5	6	13	21			
HEMLEAV	244.4	47.9	3	6	9			
ALDRLEAV	288.2	56.5	2	4	7			
TOTAL			*159*	*159*	*159*			

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	24.1	4.7	27,481	28,844	30,208			
SNAG								
HEMLEAV	244.4	47.9	708	1,358	2,009			
ALDRLEAV	288.3	56.5	203	468	732			
TOTAL	*14.5*	*2.8*	*29,797*	*30,670*	*31,543*	*9*	*2*	*1*

TC PLOGSTVB

Log Stock Table - MBF

TT6N RR6W S04 TyTAK	92.00
TT6N RR6W S16 TyRW	13.00
TT6N RR6W S16 TyTAK	192.00

Project: SPRAGSTU
Acres 297.00

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Date 4/9/2010
Time 1:26:24PM

Spp	ST	Sort	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO	2S	12	38	6.1	36	.4									19	18		
D		DO	2S	20	56		56	.7								53	4			
D		DO	2S	22	0		0	.0						0						
D		DO	2S	24	91	1.6	90	1.0							30	24		36		
D		DO	2S	28	41	7.0	39	.4										39		
D		DO	2S	32	1,796	1.4	1,772	20.6				6	2	494	236	697	295	42		
D		DO	2S	34	65	4.7	62	.7						34	29					
D		DO	2S	36	36		36	.4							36					
D		DO	2S	38	31		31	.4					31							
D		DO	2S	40	4,607		4,566	53.1					42	714	940	1854	818	198		
D		DO	3S	16	10		10	.1				3	7							
D		DO	3S	17	2		2	.0			2									
D		DO	3S	20	6	14.8	6	.1			3	3								
D		DO	3S	23	5		5	.1				5								
D		DO	3S	24	19	3.9	19	.2				8	11							
D		DO	3S	25	4		4	.0				4								
D		DO	3S	26	30	6.1	28	.3			3	5	20							
D		DO	3S	27	16		16	.2			5		11							
D		DO	3S	28	42	3.2	41	.5			4	31	6							
D		DO	3S	29	11		11	.1				11		0						
D		DO	3S	30	27		27	.3				21	6							
D		DO	3S	31	6		6	.1			5	1								
D		DO	3S	32	632		627	7.3	5		81	180	340	7	13					
D		DO	3S	33	25		25	.3		6	18									
D		DO	3S	34	16		16	.2			16									
D		DO	3S	35	17		17	.2		7			8	2						
D		DO	3S	36	125		125	1.5			84	23	17							
D		DO	3S	37	15		15	.2			7		8							
D		DO	3S	38	36		36	.4			36									
D		DO	3S	39	8		8	.1				8								
D		DO	3S	40	674	1.9	661	7.7		9	142	300	194		15	2				
D		DO	4S	9	2		2	.0					2							
D		DO	4S	12	4		4	.0			3	1								
D		DO	4S	14	3		3	.0			3									
D		DO	4S	15	6		6	.1			6									
D		DO	4S	16	49		49	.6			25	23								
D		DO	4S	18	12		12	.1			10	3								

TC PLOGSTVB

Log Stock Table - MBF

TT6N RR6W S04 TyTAK	92.00
TT6N RR6W S16 TyRW	13.00
TT6N RR6W S16 TyTAK	192.00

Project: SPRAGSTU
Acres 297.00

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Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO	4S	20	12		12	.1			9	3								
D		DO	4S	21	5		5	.1			5									
D		DO	4S	22	36		36	.4		3	32									
D		DO	4S	23	4		4	.1			4									
D		DO	4S	24	12		12	.1		6		7								
D		DO	4S	26	5		5	.1			5									
D		DO	4S	28	23		23	.3		5	18									
D		DO	4S	32	35	14.0	30	.4	5	6	20									
D		Totals			8,700	1.2	8,597	94.6	10	41	547	644	707	1252	1298	2630	1135	332		
H		DO	2S	32	16		16	15.1						16						
H		DO	2S	40	40		40	36.6								40				
H		DO	3S	32	31		31	28.1		5	0			25						
H		DO	3S	40	2		2	1.5						2						
H		DO	4S	16	17		17	15.5			17									
H		DO	4S	20	3		3	3.2				3								
H		Totals			109		109	1.2		5	17	3		44		40				
A		DO	CR	12	16		16	4.6						16						
A		DO	CR	16	15		15	4.3			15									
A		DO	CR	20	9		9	2.6				9								
A		DO	CR	24	18		18	5.0			18									
A		DO	CR	32	76		76	21.3			41	2	33							
A		DO	CR	36	11	16.7	9	2.6			9									
A		DO	CR	40	212		212	59.6			77	105	31							
A		Totals			358		356	3.9			160	116	63	16						
M		DO	CR	32	5	20.0	4	50.3			4									
M		DO	CR	36	5	16.7	4	49.7			4									
M		Totals			10	18.4	9	.1			9									
NF		DO	2S	40	13	5.0	12	63.3						12						
NF		DO	3S	32	6		6	30.0				6								
NF		DO	4S	16	1		1	6.7			1									
NF		Totals			20	3.2	19	.2			1	6		12						
C		DO	2S	28	0		0	80.0					0							
C		DO	3S	28	0		0	20.0		0										

TC PLOGSTVB

Log Stock Table - MBF

TT6N RR6W S04 TyTAK	92.00
TT6N RR6W S16 TyRW	13.00
TT6N RR6W S16 TyTAK	192.00

Project: SPRAGSTU
Acres 297.00

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Date 4/9/2010
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Spp	ST	Sort	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
C		Totals			0		0	.0		0				0						
Total		All Species			9,197	1.2	9,090	100.0	10	46	734	769	771	1324	1298	2670	1135	332		

TC TSTNDSUM

Stand Table Summary

Project SPRAGSTU

TT6N RR6W S04 TLEAV

TT6N RR6W S04 TLEA

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
T6N	R6W	04	AREA1	LEAV	92.00	27	55

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Date: 04/19/20
Time: 9:45:27AM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DL		18	1	88	54	1.774	3.14	1.77	36.0	160.0		64	284		59	26
DL		19	2	90	113	3.185	6.27	7.96	35.2	134.0		280	1,067		258	98
DL		20	4	87	124	5.748	12.54	17.25	33.3	129.2		575	2,227		529	205
DL		21	3	87	131	3.910	9.41	10.43	43.2	182.5		451	1,903		415	175
DL		22	4	88	120	4.751	12.54	13.06	44.4	184.5		580	2,411		533	222
DL		23	2	87	143	2.173	6.27	6.52	52.0	216.7		339	1,413		312	130
DL		24	4	86	135	3.992	12.54	11.98	53.5	212.5		641	2,545		589	234
DL		25	1	85	133	.920	3.14	2.76	52.7	210.0		145	579		134	53
DL		26	7	88	140	5.952	21.95	17.86	66.7	293.3		1,191	5,238		1,096	482
DL		27	1	83	150	.789	3.14	2.37	70.7	296.7		167	702		154	65
DL		28	5	86	140	3.666	15.68	11.73	69.4	301.9		815	3,541		749	326
DL		29	6	88	139	4.101	18.81	11.62	80.2	382.9		932	4,450		858	409
DL		31	1	82	150	.598	3.14	1.79	92.7	420.0		166	754		153	69
DL		34	2	85	152	.995	6.27	3.48	97.6	497.1		340	1,730		312	159
DL		Totals	43	87	129	42.554	134.81	120.58	55.4	239.2		6,686	28,844		6,151	2,654
HL		20	1	92	110	2.716	5.93	8.15	36.7	166.7		299	1,358		275	125
HL		Totals	1	92	110	2.716	5.93	8.15	36.7	166.7		299	1,358		275	125
AL		14	1	86	68	2.079	2.22	4.16	16.5	55.0		69	229		63	21
AL		18	1	86	87	1.258	2.22	2.52	26.5	95.0		67	239		61	22
AL		Totals	2	86	75	3.336	4.44	6.67	20.3	70.1		135	468		124	43
SN		15	3	88	97	3.622	4.44									
SN		18	3	90	85	2.515	4.44									
SN		24	1	86	122	.472	1.48									
SN		25	1	89	37	.435	1.48									
SN		34	1	88	18	.235	1.48									
SN		Totals	9	89	88	7.278	13.33									
Totals			55	88	120	55.884	158.52	135.40	52.6	226.5		7120	30,670		6,550	2,822

Logging Plan

OF TIMBER SALE CONTRACT NO. 341-11-26
SPRAGUES STUMP
PORTIONS OF SECTIONS 4, 9, & 16
T6N, R6W W.M., CLATSOP COUNTY, OREGON

Legend

- Timber Sale Boundary
- Area Boundary
- Existing Dirt Road
- Existing Paved Road
- Existing Surfaced Road
- New Road Construction
- Horse Trail
- Temporary Stream Crossing
- Type N Stream
- Type F Stream
- T Tractor Ground
- Cable Ground
- Posted Buffers
- Non Posted Buffer
- ODF Ownership
- Survey Corner

N

0 250 500 1,000 Feet

Approximate Scale = 1":1,000'

Approximate Net Acreage:

Area 1 (PC) -	92 Acres
Area 2 (MC) -	93 Acres
Area 3 (MC) -	52 Acres
Area 4 (MC) -	47 Acres
Area 5 (R/W) -	13 Acres
Total PC -	92 Acres
Total MC -	192 Acres

Logging Breakdown		
	Tractor	Cable
Area 1	57%	43%
Area 2	86%	14%
Area 3	62%	38%
Area 4	98%	2%
Total	75%	25%

Area 1
Area 2
Area 3
Area 4
Pt. "SE6"
Pt. "SE5"
Pt. "SE4"
Pt. "SE3"
Pt. "SE2"
Pt. "SE1"
Cow Ridge Road
Cow Creek
Bovine Mainline
Northrup Creek Road
Northrup Creek
4 3
9 10
8 9
17 16
9 10
16 15

Logging Plan

OF TIMBER SALE CONTRACT NO. 341-11-26
SPRAGUES STUMP
PORTIONS OF SECTIONS 4, 9, & 16
T6N, R6W W.M., CLATSOP COUNTY, OREGON

Legend

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Logging Breakdown		
	Tractor	Cable
Area 1	57%	43%
Area 2	86%	14%
Area 3	62%	38%
Area 4	98%	2%
Total	75%	25%